

DERWENT-ACC-NO: 2000-059514  
DERWENT-WEEK: 200210  
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TITLE: Metal oxide coating material for anode active material of lithium secondary battery - consists of three different elements of which one is chosen from group containing nickel, cobalt, manganese, calcium, strontium, barium, titanium, vanadium, chromium, iron, copper and aluminum

INVENTOR: KIM, G B; KWON, H J ; PARK, D G ; DONG-GON, P ; GEUN-BAE, K ; HO-JIN, K ; SUNG-SOO, K

PATENT-ASSIGNEE: SAMSUNG DISPLAY DEVICES CO LTD[SMSU], SAMSUNG DENKAN KK[SMSU], SAMSUNG SDI CO LTD[SMSU]

PRIORITY-DATA: 1998KR-0042956 (October 14, 1998) , 1998KR-0003755 (February 10, 1998) , 1998KR-0012005 (April 6, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
KR 277796 B	February 1, 2001	N/A
000	H01M 004/48	
JP 11317230 A	November 16, 1999	N/A
021	H01M 004/58	
CN 1228620 A	September 15, 1999	N/A
000	H01M 004/36	
KR 99071411 A	September 27, 1999	N/A
000	H01M 004/48	
KR 99079408 A	November 5, 1999	N/A
000	H01M 004/48	
SG 82599 A1	August 21, 2001	N/A
000	H01M 004/48	

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
KR 277796B	N/A	
1998KR-0042956	October 14, 1998	
KR 277796B	Previous Publ.	KR 99071411

N/A  
 JP 11317230A N/A  
 1999JP-0070652 February 10, 1999  
 CN 1228620A N/A  
 1999CN-0105518 February 10, 1999  
 KR 99071411A N/A  
 1998KR-0042956 October 14, 1998  
 KR 99079408A N/A  
 1998KR-0012005 April 6, 1998  
 SG 82599A1 N/A  
 1999SG-0000508 February 10, 1999

INT-CL (IPC): H01M004/02; H01M004/04 ; H01M004/36 ;  
 H01M004/48 ;  
 H01M004/50 ; H01M004/52 ; H01M004/58

ABSTRACTED-PUB-NO: JP 11317230A  
 BASIC-ABSTRACT: NOVELTY - The metal oxide coated on  
 surface of anode active  
 material satisfies the formula  $\text{LiAl}_{1-x-y}\text{BxCyO}_2$ , where A is  
 an element chosen  
 from the group which consists of Ni, Co and Mn. B is an  
 element chosen from  
 the group consisting of Ni, Co, Mn, B, Mg, Ca, Sr, Ba,  
 Ti, V, Cr, Fe, Cu and  
 Al. C is an element chosen from the group consisting of  
 Ni, Co, Mn, B, Mg, Ca,  
 Sr, Ba, Ti, V, Cr, Fe, Cu and A.

USE - For anode active material of lithium secondary  
 battery used as power  
 supply for portable electronic machine.

ADVANTAGE - The anode active material increases the  
 safety of battery by  
 increasing structural and thermal stability. Quantity of  
 lithium in the active  
 material can be adjusted easily and the life span also  
 can be increased.

CHOSEN-DRAWING: Dwg.1/23

TITLE-TERMS:  
 METAL OXIDE COATING MATERIAL ANODE ACTIVE MATERIAL  
 LITHIUM SECONDARY BATTERY  
 CONSIST THREE ELEMENT ONE CHOICE GROUP CONTAIN NICKEL  
 COBALT MANGANESE CALCIUM  
 STRONTIUM BARIUM TITANIUM VANADIUM CHROMIUM IRON COPPER

DERWENT-CLASS: L03 X16

CPI-CODES: L03-E01B8;

EPI-CODES: X16-B01F1; X16-E01C1; X16-E01G;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2000-016316

Non-CPI Secondary Accession Numbers: N2000-046739

DERWENT-ACC-NO: 2001-083371  
DERWENT-WEEK: 200110  
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TITLE: Lithium secondary battery has composite particle  
positive electrode  
active material comprising transition metal oxide base  
particle coated with  
preset metal layers

PATENT-ASSIGNEE: SANYO ELECTRIC CO LTD[SAOL]

PRIORITY-DATA: 1998JP-0227665 (July 27, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 2000048820	February 18, 2000	N/A
007	H01M 004/62	

A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP2000048820A	N/A	
1998JP-0227665	July 27, 1998	

INT-CL (IPC): H01M004/02; H01M004/04 ; H01M004/58 ;  
H01M004/62 ;  
H01M010/40

ABSTRACTED-PUB-NO: JP2000048820A

BASIC-ABSTRACT: NOVELTY - The battery has non-aqueous  
electrolyte which is  
mixture of lithium salt and organic solvent, and positive  
electrodes (1)  
containing composite particle active material. The  
composite particle  
comprises base particle containing oxides of transition  
elements selected from  
Co, Ni, M and Fe. The base particle is coated with  
conductive layer of metal  
chosen from Mg, Al, Ba, Sr, Ca, Zn, Sn, Bi, Ce and/or Yb.

USE - Lithium secondary battery.

ADVANTAGE - Improves charging and discharging cycle characteristics of lithium secondary battery by using positive electrode active material with predefined composite particles.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional view of lithium secondary battery.

Positive electrodes 1

CHOSEN-DRAWING: Dwg.1/1

TITLE-TERMS:

LITHIUM SECONDARY BATTERY COMPOSITE PARTICLE POSITIVE  
ELECTRODE ACTIVE MATERIAL  
COMPRISE TRANSITION METAL OXIDE BASE PARTICLE COATING  
PRESET METAL LAYER

DERWENT-CLASS: L03 X16

CPI-CODES: L03-E01B8;

EPI-CODES: X16-B01F; X16-E01; X16-E01C; X16-E01G;  
X16-E09;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2001-024371

Non-CPI Secondary Accession Numbers: N2001-063698

DERWENT-ACC-NO: 2000-545568  
DERWENT-WEEK: 200142  
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TITLE: Non-aqueous electrolyte secondary battery for  
video camera, has metal  
oxide coating on surface of carbon active material of  
cathode

PATENT-ASSIGNEE: SHIN KOBE ELECTRIC MACHINERY[KOBE]

PRIORITY-DATA: 1998JP-0177502 (June 24, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 2000012026	January 14, 2000	N/A
004	H01M 004/58	

A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP2000012026A	N/A	
1998JP-0177502	June 24, 1998	

INT-CL\_(IPC): H01M004/02; H01M004/58 ; H01M010/40

ABSTRACTED-PUB-NO: JP2000012026A

BASIC-ABSTRACT: NOVELTY - A metallic oxide is coated over  
the surface of carbon  
used as active material of a negative electrode. The  
metal used in metallic  
oxide is chosen out of nickel, cobalt, copper, gold,  
molybdenum or tungsten.

USE - For use as main or backup power supply in video  
camera, portable  
telephone set, personal computer, household electric  
appliances and for  
electric vehicles.

ADVANTAGE - Secondary battery excellent in preservation  
property and  
charging-discharging cycle is provided.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS:

NON AQUEOUS ELECTROLYTIC SECONDARY BATTERY VIDEO CAMERA  
METAL OXIDE COATING  
SURFACE CARBON ACTIVE MATERIAL CATHODE

DERWENT-CLASS: L03 X16

CPI-CODES: L03-E01B3;

EPI-CODES: X16-B01F1; X16-E01C1;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1669U

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2000-162547

Non-CPI Secondary Accession Numbers: N2000-403637

63  
DERWENT-ACC-NO: 2000-381965  
DERWENT-WEEK: 200116  
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TITLE: Lithium transition metal halide oxides used as  
positive electrode  
active materials of lithium secondary batteries

PATENT-ASSIGNEE: UBE IND LTD[UBEI]

PRIORITY-DATA: 1998JP-0296266 (October 19, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
JP 3141858 B2	March 7, 2001	N/A
012	C01G 037/06	
JP 2000128539	May 9, 2000	N/A
019	C01G 037/06	

A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
JP 3141858B2	N/A	
1998JP-0296266	October 19, 1998	
JP 3141858B2	Previous Publ.	JP2000128539
N/A		
JP2000128539A	N/A	
1998JP-0296266	October 19, 1998	

INT-CL (IPC): B22F001/02; C01G037/06 ; C01G045/06 ;  
C01G049/10 ;  
C01G051/08 ; C01G053/09 ; H01M004/02 ; H01M004/04 ;  
H01M004/58 ;  
H01M010/40

ABSTRACTED-PUB-NO: JP2000128539A

BASIC-ABSTRACT: NOVELTY - Lithium transition metal halide  
oxide is

characterized in that it contains mainly a transition  
metal oxide containing  
lithium or a transition metal halide oxide containing  
lithium, its particle  
surfaces are coated with a crystalline metal halide, and  
the atomic ratio of



halogen to transition metal is in a certain range.

DETAILED DESCRIPTION - Lithium transition metal halide oxide is characterized in that it contains mainly a transition metal oxide containing lithium or a transition metal halide oxide containing lithium of formula  $\text{Li}_a\text{M}_b\text{O}_c\text{X}_d$  ( $\text{M}$  = at least one metal selected from Cr, Mn, Fe, Co, and Ni,  $\text{X}$  = at least one halogen,  $a$  = greater than or equal to 0.2 and less than or equal to 1.2,  $b$  = greater than or equal to 0.8 and less than or equal to 1.2,  $c$  = greater than or equal to 1.7 and less than or equal to 2.1, and  $d$  = greater than or equal to 0 and less than or equal to 0.3), the particle surfaces of the lithium transition metal halide oxide are coated with a crystalline metal halide of formula  $\text{NX}_e$  ( $\text{N}$  = at least one metal selected from Li, Mg, Al, Ca, Ti, V, Cr, Mn, Fe, Co, and Ni,  $\text{X}$  = at least one halogen, and  $e$  = a valence equivalent to that of metal  $\text{N}$ ), the atomic ratio of halogen ( $\text{X}$ ) present on the particle surfaces in the form of a crystalline metal halide to metal ( $\text{M}$ ),  $\text{X}/\text{M}$ , is 0.01-0.5, the atomic ratio of halogen ( $\text{X}$ ) present in the particles in the form of a solid solution substituting oxygen atoms to metal ( $\text{M}$ ),  $\text{X}/\text{M}$ , is at least 0.002, and the ratio of the sum of two kinds of halogen atoms ( $\text{X}$ ) to metal atoms ( $\text{M}$ ),  $\text{X}/\text{M}$ , is 0.02-0.5. INDEPENDENT CLAIMS are also included for the preparation of the lithium transition metal halide oxide and for lithium secondary batteries which use the lithium transition metal halide oxide.

USE - The lithium transition metal halide oxides can be used as positive electrode active materials in lithium secondary batteries.

ADVANTAGE - The lithium transition metal halide oxides obtained have good cycle characteristics even at high temperatures.

CHOSEN-DRAWING: Dwg.0/2

TITLE-TERMS:

LITHIUM TRANSITION METAL HALIDE POSITIVE ELECTRODE ACTIVE  
MATERIAL LITHIUM  
SECONDARY BATTERY

DERWENT-CLASS: L03 P53 X16

CPI-CODES: L03-E01B5;

EPI-CODES: X16-B01F1; X16-E01C1; X16-E01G;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C2000-116004

Non-CPI Secondary Accession Numbers: N2000-287330